

Title (en)
MICROMIXER

Title (de)
MIKROVERMISCHER

Title (fr)
MICROMELANGEUR

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Application
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Abstract (en)
[origin: WO0143857A1] Micromixers constitute a main component of microreactors that have three-dimensional microstructures in a fixed matrix, in which chemical reactions take place. In said micromixer, fluids from their respective supply chambers are divided into spatially separate fluid streams using a network of microchannels allocated to the respective streams. Said streams then emerge as jets with identical volumetric flows for each fluid into a mixing chamber. The invention aims to ensure that identical volumetric flows are achieved for each fluid at the respective microchannel outflow and to produce a micromixer with a simple, compact construction. Wedge-shaped plates can be used as the supply elements (2a-d). Said plates can be assembled to form at least one ring sector which surrounds the mixing chamber (5) in the form of a curve. Alternatively, planar plates can be used which comprise a cavity in their central region, into which the microchannels (31-34) emerge, in such a way that the stacked plates form the mixing chamber (5). The microchannels (31-34) provided for each fluid form one or more symmetrical bifurcation cascades (3) comprising at least two stages. The micromixer can be used in microreactors, for example in the field of combined chemistry, for creating emulsion and gaseous/liquid dispersions and for gas-phase catalysis.

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